lost. Artists were even unable to delineate Gothic buildings correctly: as late as 1804, in such a book as King's *Munimenta Antiqua*, you will find engravings purporting to be representations of Gothic churches, which, when compared, are seen to be so unlike that it is hard to believe the artist had seen what he pretended to represent. The poets did something to bring the medieval works back to general regard: a school of educated draughtsmen and engravers arose, and carefully set forth every monument of interest: destruction was to some extent stayed; and a desire to maintain them in their integrity was gradually induced. A religious movement aided in the same course, and for some time past, an ecclesiastical structure erected in any other than the Gothic style has been a rarity.

The architecture of our day is for the most part initiative,—representative merely. An architect adopts a particular style, and his building is pronounced successful to the extent only that it accurately represents a work of the period aimed at. A wider view is opening upon us; and there are quick minds in the field striving to destroy the trammels of precedent, so far as precedent makes trammels, and to obtain fair play for common sense, honest building, and creative power. This, however, is travelling out of the record. What I proposed to you was simply to trace with a rapid pen the history of architecture from the earliest times; to show you that its course was continuous, and that in tracing it we trace the onward and downward progress of different parts of the world,—that, in short, the history of Architecture illustrates the history of Civilisation. Bolingbroke, when he called for his volumes of history, said, "Bring me my *liars*." Brick and stone records tell no lies: and to those who know how to question these stern enduring witnesses of past time, they speak plainly, and give much information. A mere account, in words, of a people, or of a particular state of society, you may read unimpassioned, unimpressed; but view the buildings which they raised,—see the evidences of that state of society in the structures and arrangements which it led to, and the whole becomes a fixed reality, not easily forgotten.

Here, then, we end our journey; and so, estimable friend, Farewell! We have travelled rather a long road together, but so rapidly that I venture to hope you have not found it very wearisome. If we have not seen the whole of it, and its many sinuous branches, we have stopped where some of the most striking changes of scenery and manners took place. I have given you an index instead of a history,—a bill of fare rather than a dinner. But if what has been said has opened your eyes to the interest of the subject, and has shown you that it may be studied with advantage and without difficulty, my object has been attained. For your kindly companionship accept my thanks, and believe me always,

Very sincerely yours.

GEORGE GODWIN.

COATING AND ORNAMENTING ZINC.—A patent has been taken out by Mr. F. H. Greenstreet, of Albany-street, for coating and ornamenting zinc surfaces, by means of acids alone, or in combination with other matters. The solution may be applied by sprinkling, dabbing, spreading, or marbling; and the surfaces are capable of further ornamentation by painting. Muriatic acid, diluted with water to about 1·114 specific gravity, gives a light ash colour; chrome yellow, with the same acid, a yellowish grey: Saxony green, mixed gradually with the acid to a paste, and stirred until effervescence ceases, produces greenish iron grey: white lead with the acid, or Kremnitz white, gives a grey coating: the acid with sulphur produces a yellowish white. Butter of antimony gives a black colour, but when mixed with the other pigments does not affect them, but makes a good groundwork. The surfaces having been coated, should be protected by a coat of varnish. Copal may be used, but the patentee prefers a preparation of wax, as effectually preventing oxidation.

A VIEW OF VENTILATION.

ENGLAND has for some time been ringing with talk—talk—talk about the causes of unnecessary disease and mortality, of which *the chief*, as many believe, is foul air in buildings, *i. e.* air retained after it has been once breathed. As it has been known for about eighty years that the same air cannot be breathed a second time with impunity, it seems odd that our dwellings should still be constructed so as to retain it as long as possible, and mix it as thoroughly as possible with all fresh air that enters. But so it is; and if these were the ends proposed, architects might be challenged to contrive any thing better adapted to secure them. Every breath of respired air that leaves us rises, we know, by its own levity,—the only conceivable power by which it could be kept from immediate mixture with what we inhale next—the only power by which it can be removed out of our way, out of doors or in. It rises, then, till it meets with a ceiling, generally an air-tight level horizontal surface. It is instantly spread out into a thin layer,—cooled down to the general temperature (at which it is *heavier* than pure air) as rapidly as possible,—broken up and displaced by the next warm breath that follows it,—and falls back to be breathed again, and circulate again and again in the same round. The openings by which air enters and leaves the place may be abundantly —*always are abundantly—sufficient*, both for the entry of all that is needed, and the exit of all that is fouled, *if we could only get it there*. But how is it to be got there, till it has lost, by cooling, all its natural power to escape of itself, and been mixed throughout all other air in the room? What steam-power, what fan or furnace, or Victoria Tower or Clock Tower draught that Dr. Reid could contrive, is to extract it from this mixture once made? or to give us a single mouthful of unpolluted fresh air in a room provided with this arrangement for instantly polluting all that enters?—with this inverted sump for light fluids—this undrained receptacle for breath, that keeps it safe till it can be kept separate no longer, and then sends it back to mix inseparably throughout the room. What is the use of "ventilators" hanging down like bosses, or with surrounding rims protecting them from all *drainage* of the surrounding surface?—gaping like Tantalus for a layer of fluid that never reaches down to underflow their lips; for ere it accumulate to half an inch deep from any ceiling, it must either have drained off up the slope, or if there be no slope, have cooled and been replaced, and sent back whence it came. What is the use of "ventilators" in one or more divisions or "coffers" of a ceiling? (divided into such receptacles apparently to keep the poison, during its refrigeration, more safely, against all draughts or lateral disturbances). Or what is the use of them at all (except for the persons immediately under them) in level surfaces? from which the light air can no more *run off* than heavy fluid can run off Trafalgar-square, their inverted counterpart.

The foul air, the great self-imposed scourge to be got rid of, has, inherent in it, while still warm (*not longer*) a motive-power providentially lodged in it, sufficient (though only *just* sufficient) to effect its own escape, if not hindered, and of course to draw in fresh air in its room, if *that* also be not hindered (which it never is), for without this replacement of course the light air could not escape. It seems odd, then, that there should be any necessity for "*ventilation*" (*air-carrying*), when we see that it only awaits permission to carry *itself*, and has all the power to do so, if we would only *let* it—if we would only so build as *not to prevent* its natural escape and replacement. Would it not be better for architects *not to make* the mischief, than for Reids and Faradays to be taxed with the impossible problem of *curing* it? I say impossible, for the laws of nature, as far as at present known, afford literally no remedy. No mechanical power (and no available chemical one, but that of the green forests) can separate fresh and foul air once allowed to mix. A breath which has once knocked at the ceiling for dismissal, and been refused, can never be removed by the ventilation doctors till the whole air of the place has been changed.

As our difficulty, then, is like Mahomet's—as we cannot, against natural laws, get the foul air to the provided outlets, but must bring the outlets *to it*—a roof without a ceiling affords no means of letting this refuse out without letting the rain in. But a ceiling may be so formed as to let it through without hindrance, and yet prevent its return when cooled; and thus oblige its exit into the open air by *side* openings *between* the two coverings, or between the ceiling and the floor above. Two distinct coverings, then, there *must* be, wherever the two ends of keeping out rain and letting out breath are to be fulfilled. The former is the function of a roof, the latter of a *ceiling*. Thus this member is not, as Dr. Robinson said, "only to keep off dust;" but, if sanitary reform be anything but a canting cry—if unnecessary death and disease be things for which any are to account—if the suppliers of dwellings are answerable for economising at the cost of life—if they have any duty, in building for others (as Israel in building for themselves), to "make a battlement for thy roof, that thou bring not blood upon thy house, if any man fall from thence,"—in short, if any man be responsible for human life wasted by human agency—if "at the hand of every man's brother" shall be required "the life of man"—then is this part of every building to be contrived according to whatever our latest science may prove necessary to the free passage of light fluid through it from below, and its retention above when once through.

Taking this, then, as the primary function of all ceilings, we see that their form can no longer be lawfully made better of fancy alone. (Indeed I cannot see that they have gained much even in an artistic point of view, since being made so.) Their form must, in the first place, be such as to have complete *upward drainage*, so that light air rising to *any* part of their surface may find immediate unobstructed way, by its own levity, to an outlet; in short, so that if the whole were *inverted* and ruined into, it would drain itself, and retain no water anywhere; or so that if the room in its actual position, without a floor, were sunk in water like a diving-bell, the water would rise and fill it, to the exclusion of every bubble of air. Next, it can have *no portion whatever of horizontal surface*, or of any approaching within a certain angle to horizontality. But as this and other requirements may be deduced best from a comparison with the analogous case of drainage (which is the same thing to heavy fluid refuse as this to *light* fluid refuse), I will enumerate first their resemblances, and then their differences;—first reminding the reader, that as a sump or cesspool is a convicted and sentenced manslayer, because what it receives in a heavy non-elastic form, presently loses the weight that carried it there, and comes back to us light as air, volatile and unmanageable; so the *inverted* sump overhead is equally a manslayer, because what it receives in a form lighter than common air, presently loses the buoyancy that carried it there, and comes back to us as heavy as common air, and thus unmanageable. And this is many thousand times quicker in losing its buoyancy (*i. e.* cooling) than the other refuse in losing its weight (*i. e.* evaporating). Both require *drainage* of their contents; the one to be quickly drained off *downwards*, the other still more quickly *upwards*, before they have time to lose the force (*weight* in one, *levity* in the other), which, given them for their removal, only serve in misconstructed places to retain them. The resemblances, then, are these:—

1. In draining a space which is liable to receive descending fluid at every part of its area (as a roof exposed to the rain), the drains and the slopes leading to them must occupy the whole surface, so as to leave no portion horizontal. Similarly, to let out foul air, which rises (or is liable to rise) against every part of a ceiling, the vents and the slopes leading to them must occupy the whole.

2. The slopes and outlets of liquid and aëriform refuse alike call for smoothness, even

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